jc599 U.S. PTO
09/471652
12/23/99

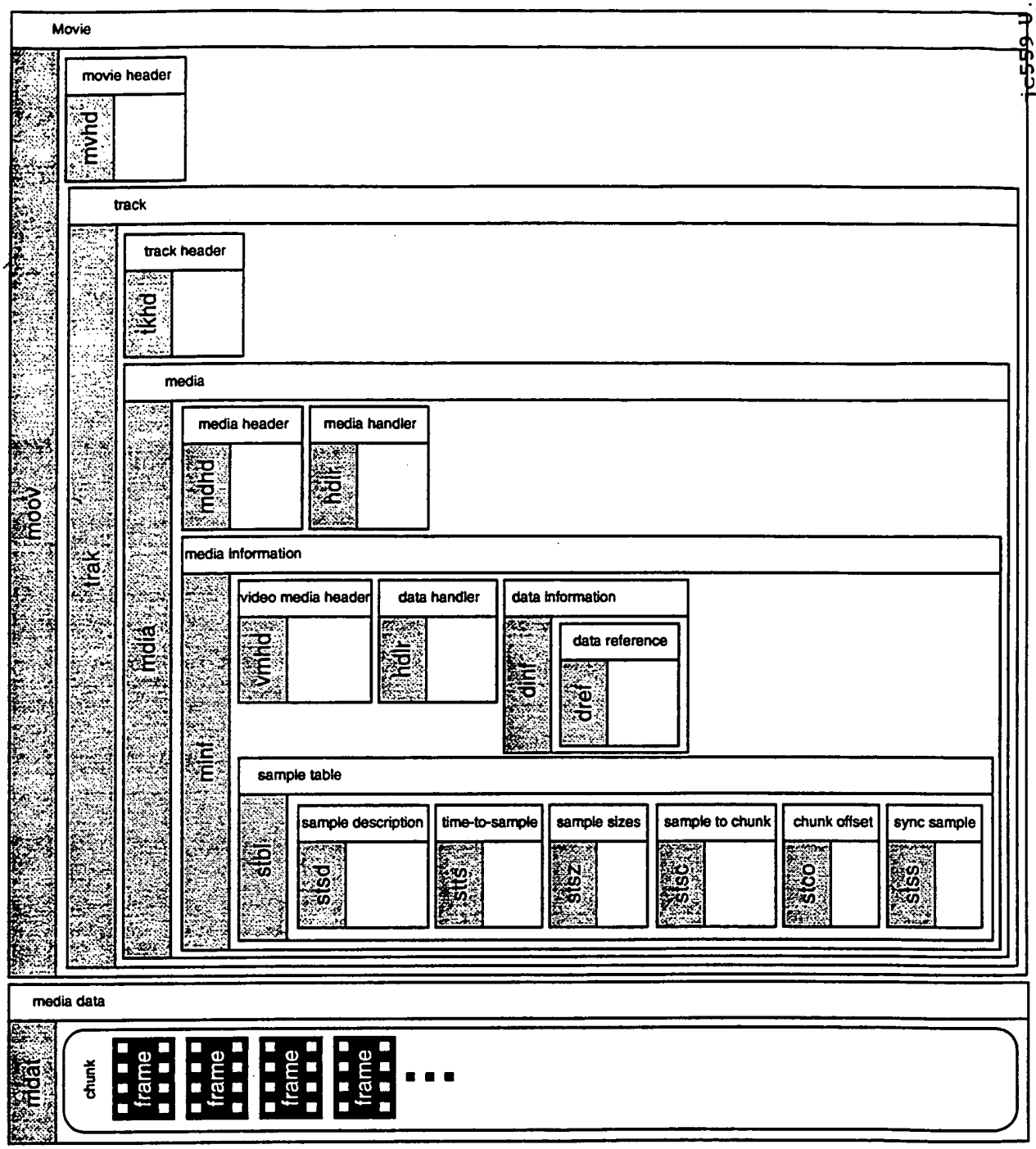



Figure 1

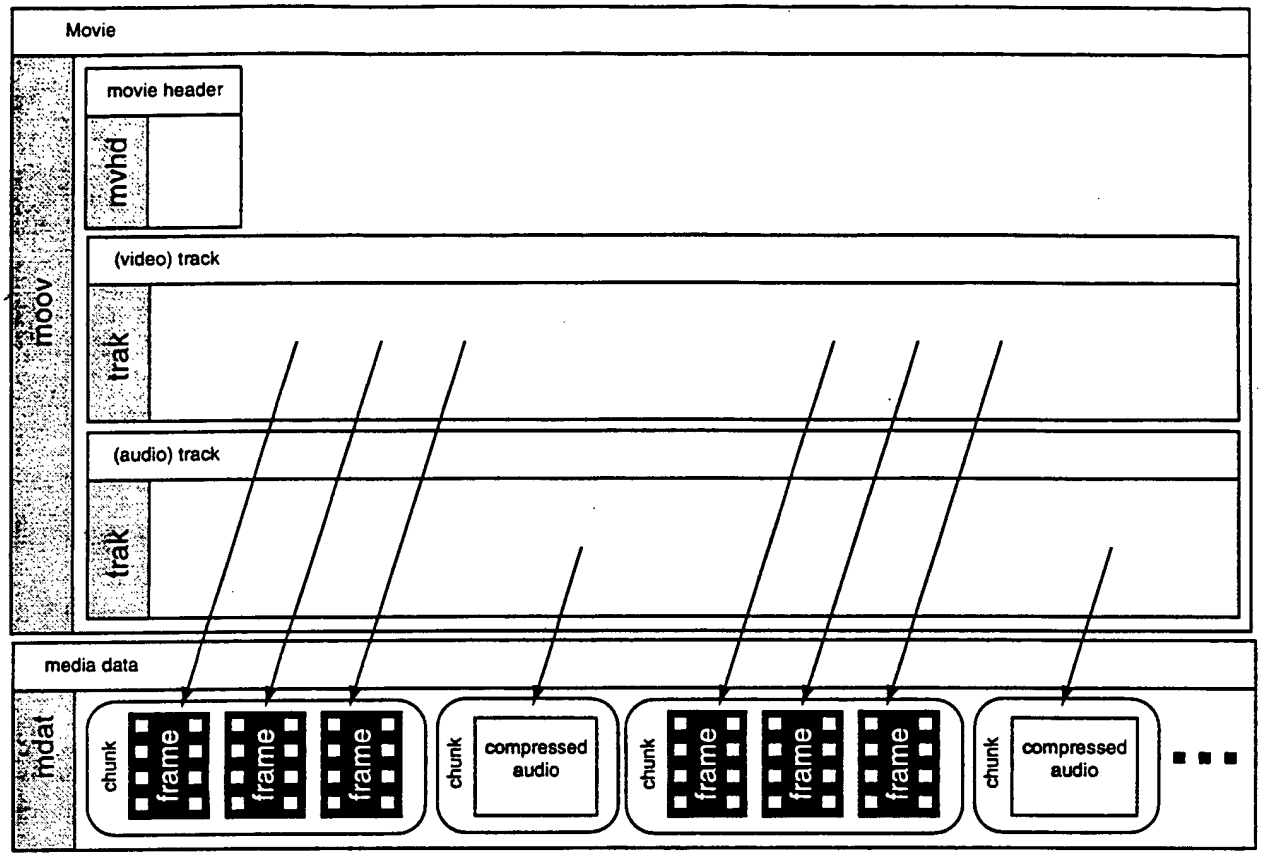
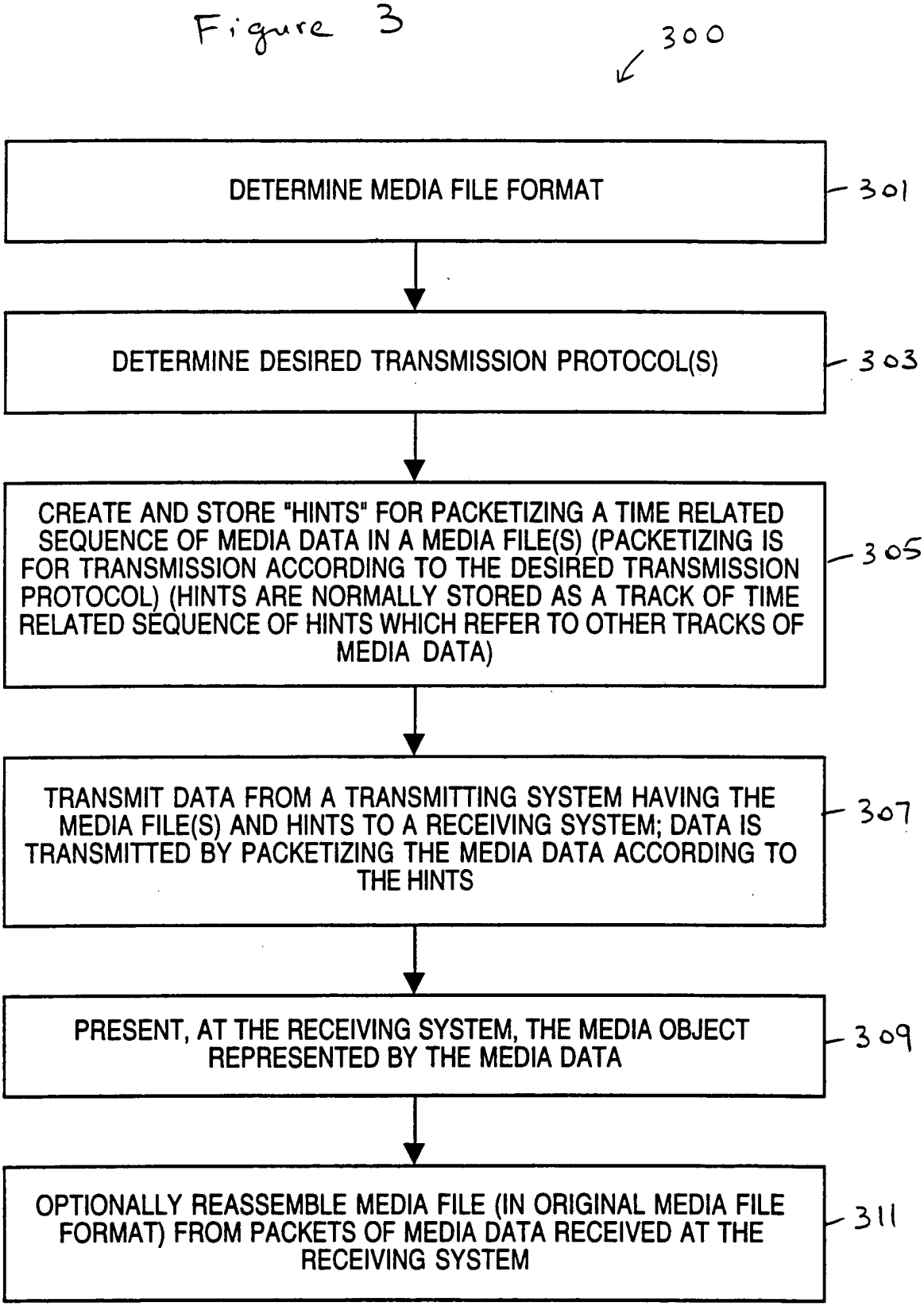

Movie
moov
movie header
mvhd
(video) track
trak
(audio) track
trak
media data
mdat
chunk
frame
frame
frame
chunk
compressed audio
chunk
frame
frame
frame
chunk
compressed audio

Figure 2

Figure 3


300
DETERMINE MEDIA FILE FORMAT
301
DETERMINE DESIRED TRANSMISSION PROTOCOL(S)
303
CREATE AND STORE "HINTS" FOR PACKETIZING A TIME RELATED SEQUENCE OF MEDIA DATA IN A MEDIA FILE(S) (PACKETIZING IS FOR TRANSMISSION ACCORDING TO THE DESIRED TRANSMISSION PROTOCOL) (HINTS ARE NORMALLY STORED AS A TRACK OF TIME RELATED SEQUENCE OF HINTS WHICH REFER TO OTHER TRACKS OF MEDIA DATA)
305
TRANSMIT DATA FROM A TRANSMITTING SYSTEM HAVING THE MEDIA FILE(S) AND HINTS TO A RECEIVING SYSTEM; DATA IS TRANSMITTED BY PACKETIZING THE MEDIA DATA ACCORDING TO THE HINTS
307
PRESENT, AT THE RECEIVING SYSTEM, THE MEDIA OBJECT REPRESENTED BY THE MEDIA DATA
309
OPTIONALLY REASSEMBLE MEDIA FILE (IN ORIGINAL MEDIA FILE FORMAT) FROM PACKETS OF MEDIA DATA RECEIVED AT THE RECEIVING SYSTEM
311

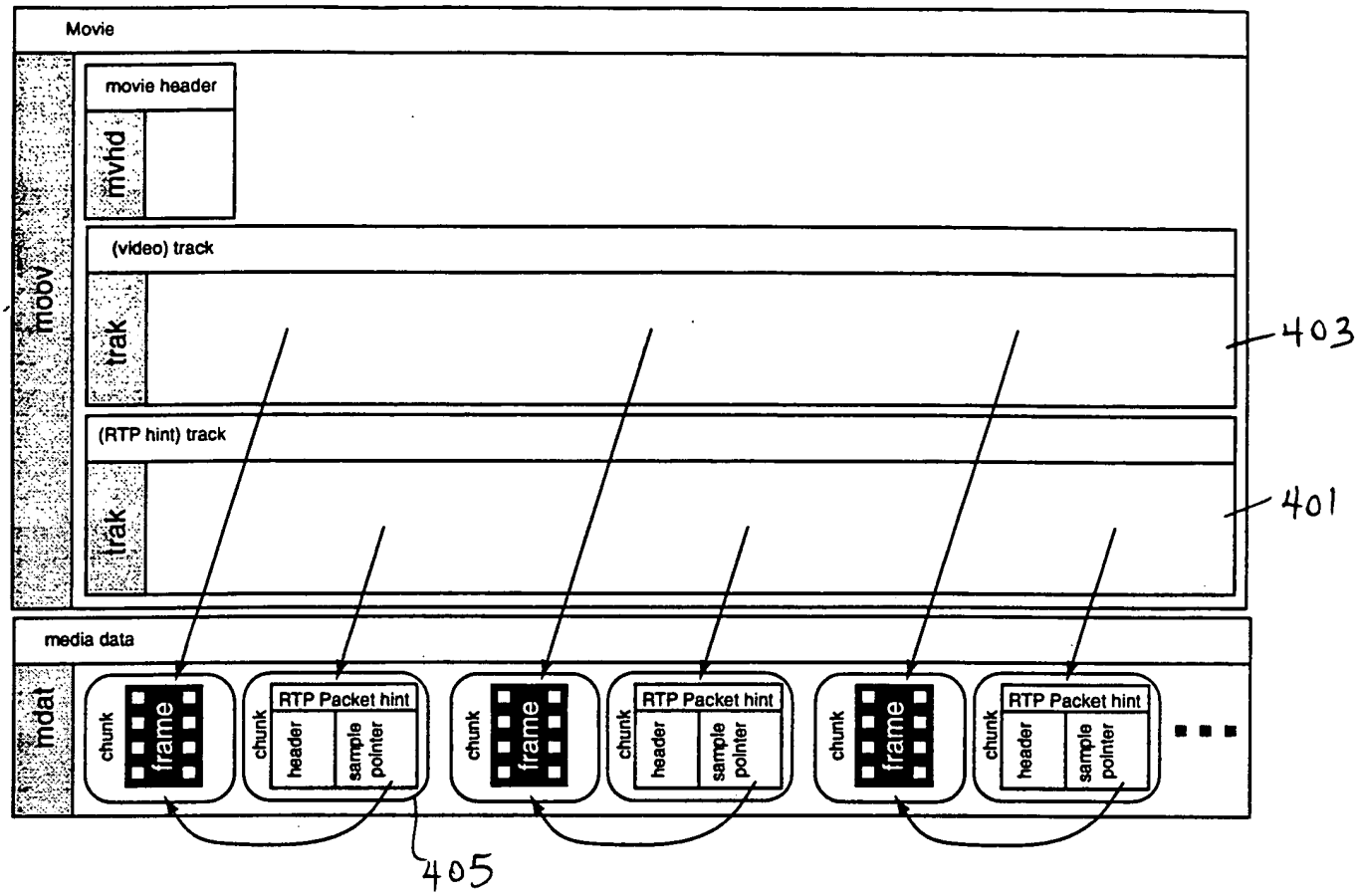

Movie
moov
movie header
mvhd
(video) track
trak
403
(RTP hint) track
trak
401
media data
mdat
chunk
frame
chunk
RTP Packet hint
header
sample pointer
405

Figure 4

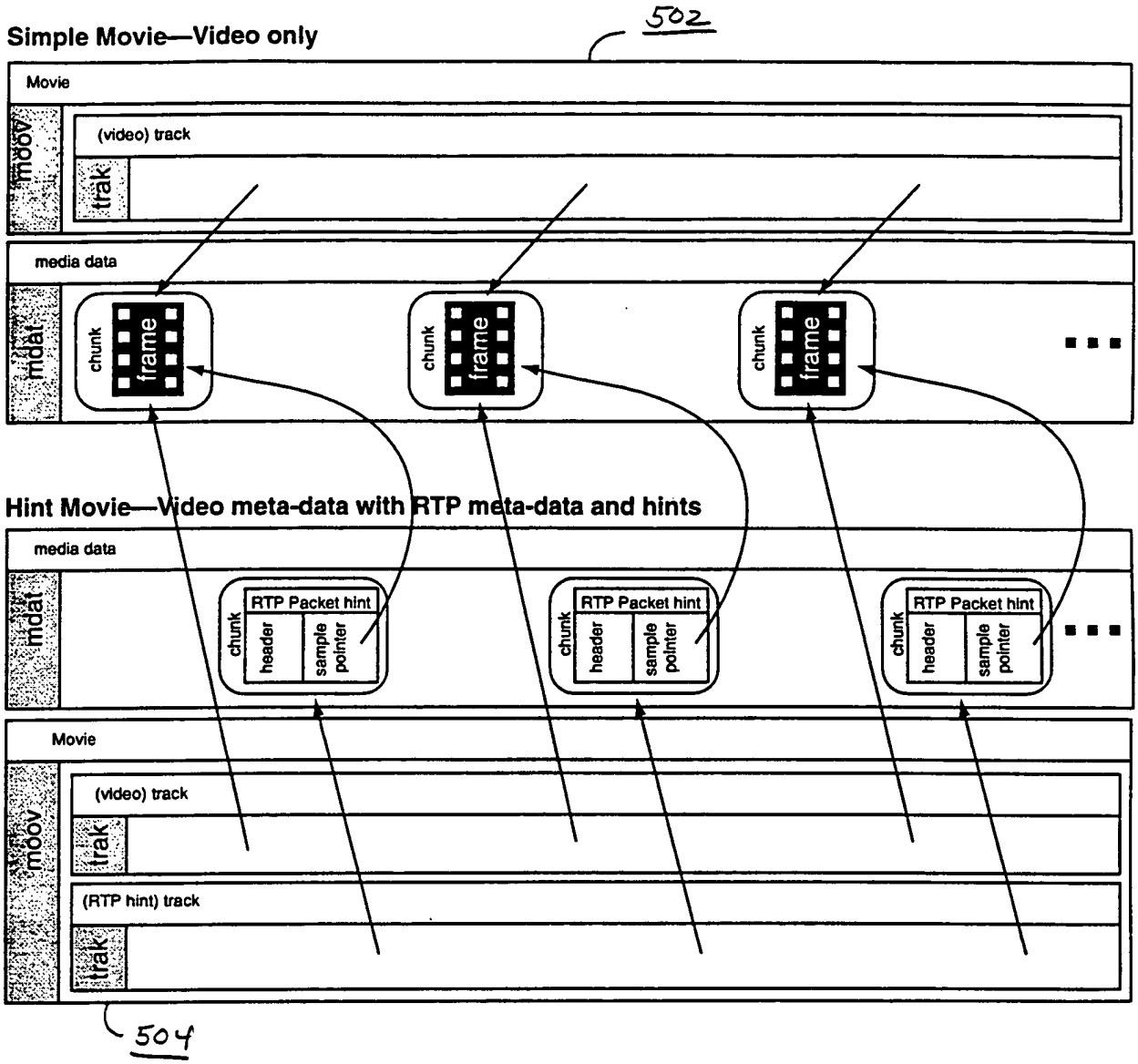

Simple Movie—Video only
502
Movie
moov
(video) track
trak
media data
mdat
chunk
frame
Hint Movie—Video meta-data with RTP meta-data and hints
media data
mdat
chunk
RTP Packet hint
header
sample pointer
Movie
moov
(video) track
trak
(RTP hint) track
trak
504

Figure 5

FIG. 6

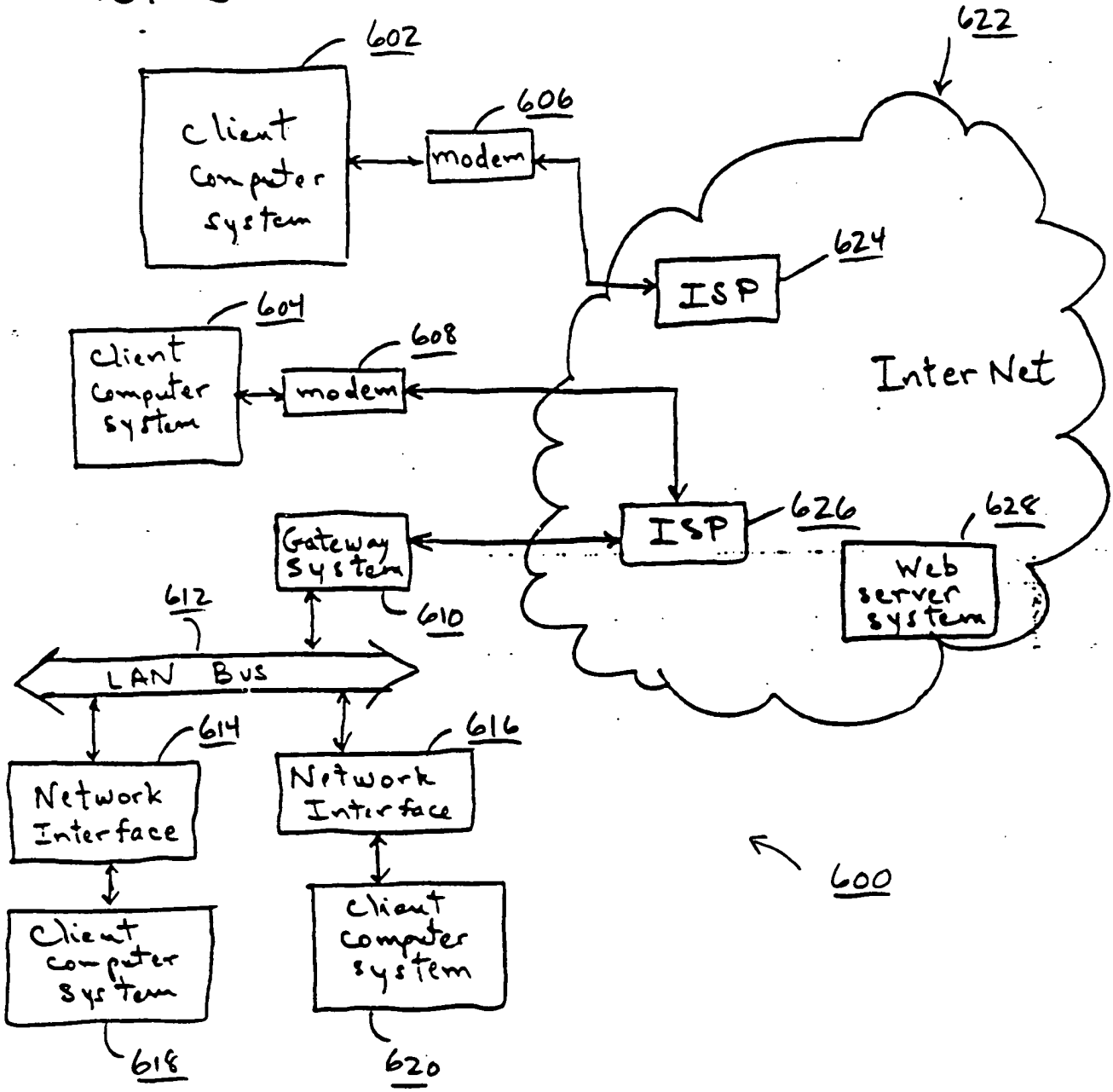
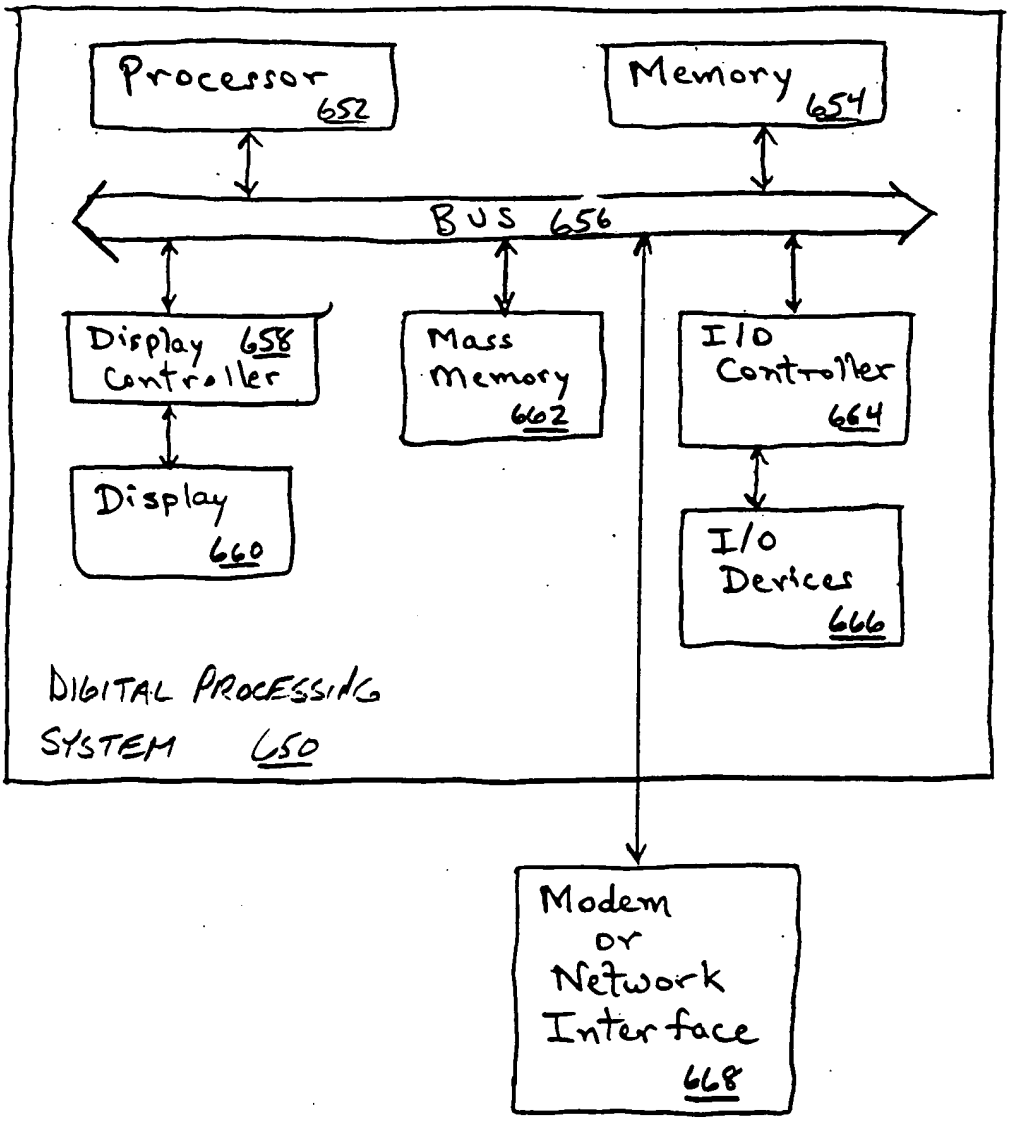

602
Client computer system
606
modem
622
624
ISP
Inter Net
604
Client computer system
608
modem
626
ISP
628
Web server system
Gateway System
610
612
LAN Bus
614
Network Interface
616
Network Interface
618
Client computer system
620
Client computer system
600

Fig. 7


Processor 652
Memory 654
BUS 656
Display 658 Controller
Mass Memory 602
I/O Controller 664
Display 660
I/O Devices 666
DIGITAL PROCESSING SYSTEM 650
Modem or Network Interface 668

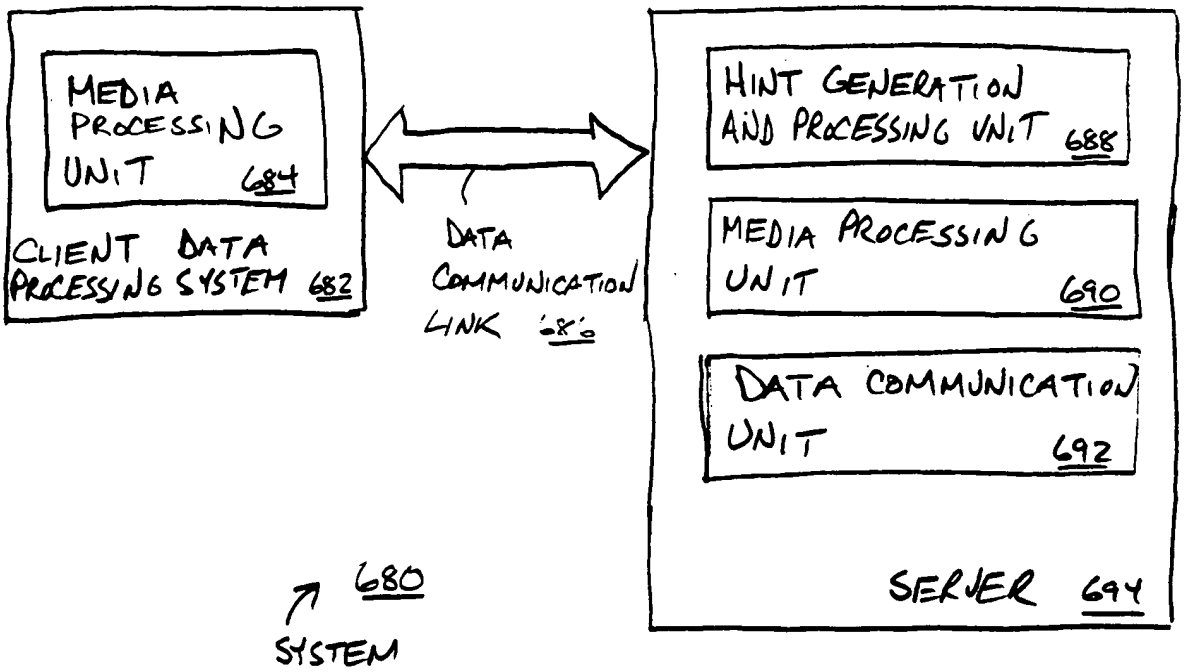

MEDIA PROCESSING UNIT 684
CLIENT DATA PROCESSING SYSTEM 682
DATA COMMUNICATION LINK 686
HINT GENERATION AND PROCESSING UNIT 688
MEDIA PROCESSING UNIT 690
DATA COMMUNICATION UNIT 692
SERVER 694
680
SYSTEM

FIG. 8

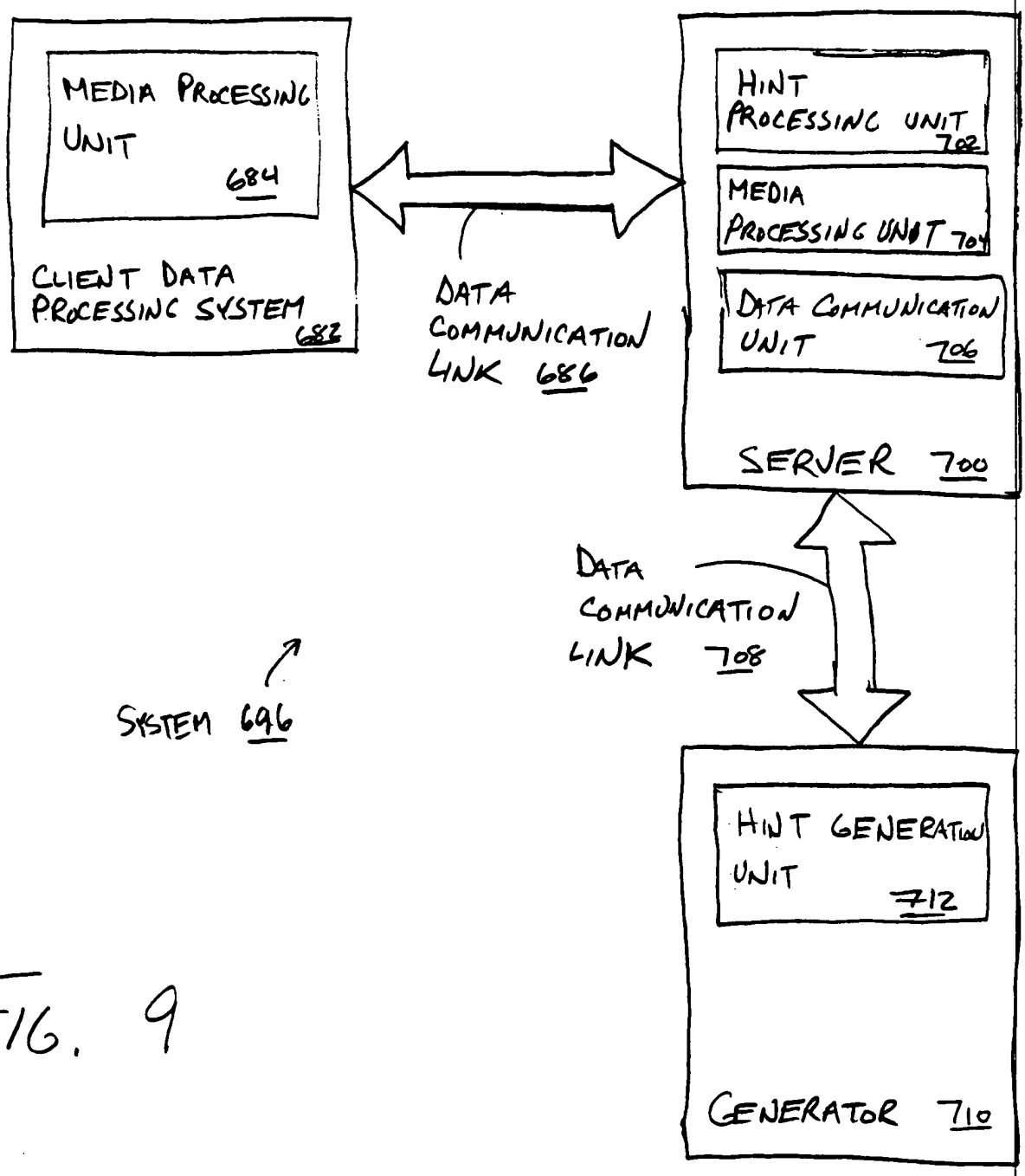

MEDIA PROCESSING UNIT
684
CLIENT DATA PROCESSING SYSTEM
682
DATA COMMUNICATION LINK 686
HINT PROCESSING UNIT
702
MEDIA PROCESSING UNIT
704
DATA COMMUNICATION UNIT
706
SERVER 700
DATA COMMUNICATION LINK 708
SYSTEM 696
HINT GENERATION UNIT
712
GENERATOR 710

FIG. 9

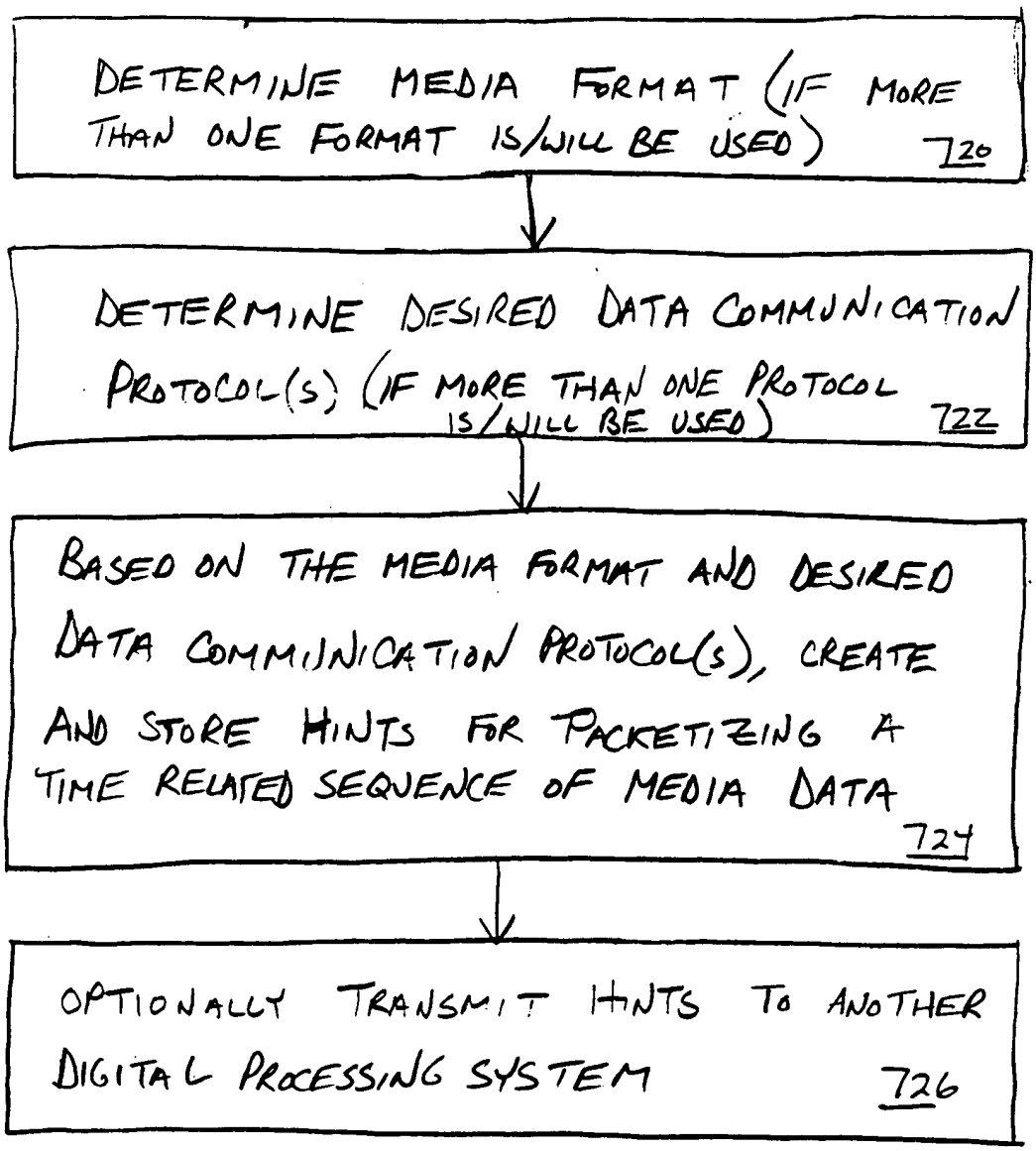

DETERMINE MEDIA FORMAT (IF MORE THAN ONE FORMAT IS/WILL BE USED) 720
DETERMINE DESIRED DATA COMMUNICATION PROTOCOL(S) (IF MORE THAN ONE PROTOCOL IS/WILL BE USED) 722
BASED ON THE MEDIA FORMAT AND DESIRED DATA COMMUNICATION PROTOCOL(S), CREATE AND STORE HINTS FOR PACKETIZING A TIME RELATED SEQUENCE OF MEDIA DATA 724
OPTIONALLY TRANSMIT HINTS TO ANOTHER DIGITAL PROCESSING SYSTEM 726

FIG. 10

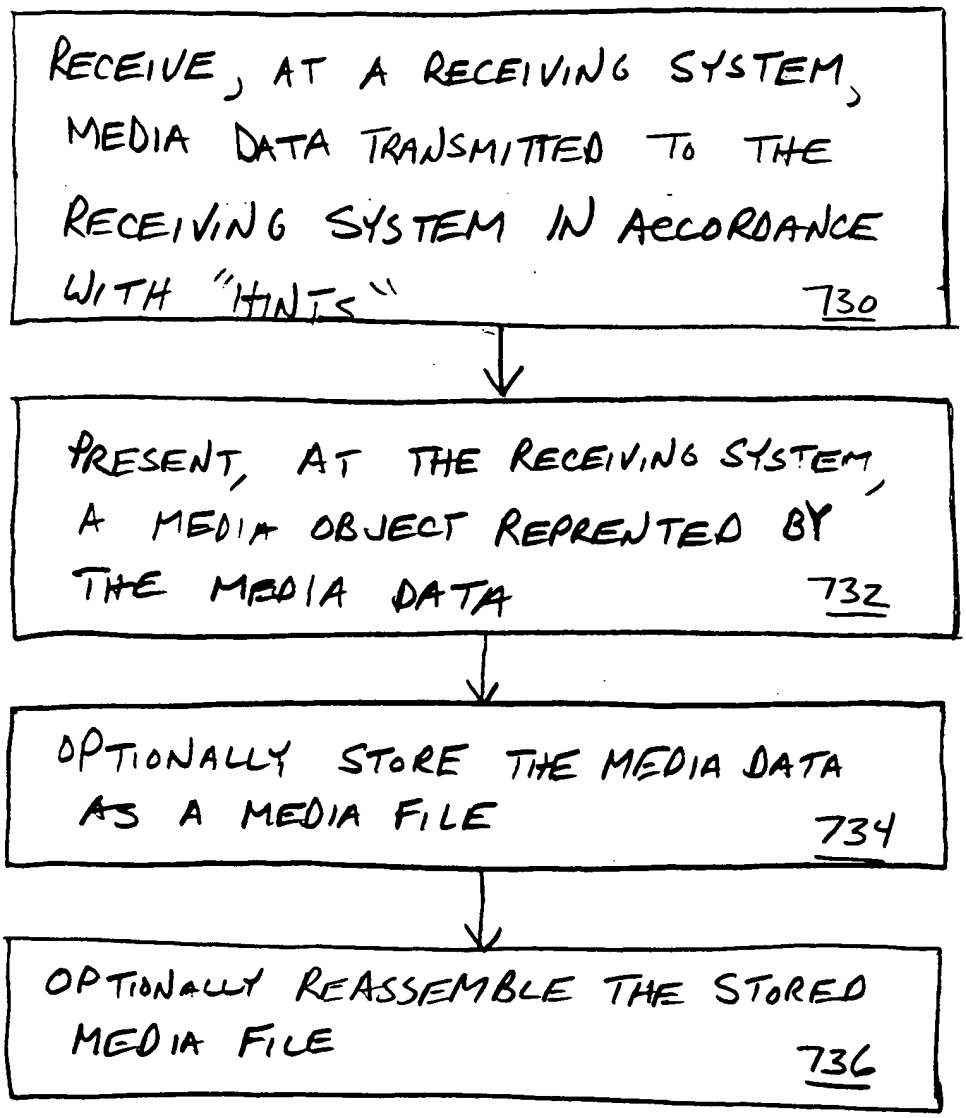

RECEIVE, AT A RECEIVING SYSTEM, MEDIA DATA TRANSMITTED TO THE RECEIVING SYSTEM IN ACCORDANCE WITH "HINTS"
730
PRESENT, AT THE RECEIVING SYSTEM, A MEDIA OBJECT REPRENTED BY THE MEDIA DATA
732
OPTIONALLY STORE THE MEDIA DATA AS A MEDIA FILE
734
OPTIONALLY REASSEMBLE THE STORED MEDIA FILE
736

FIG. 11

FIG. 12

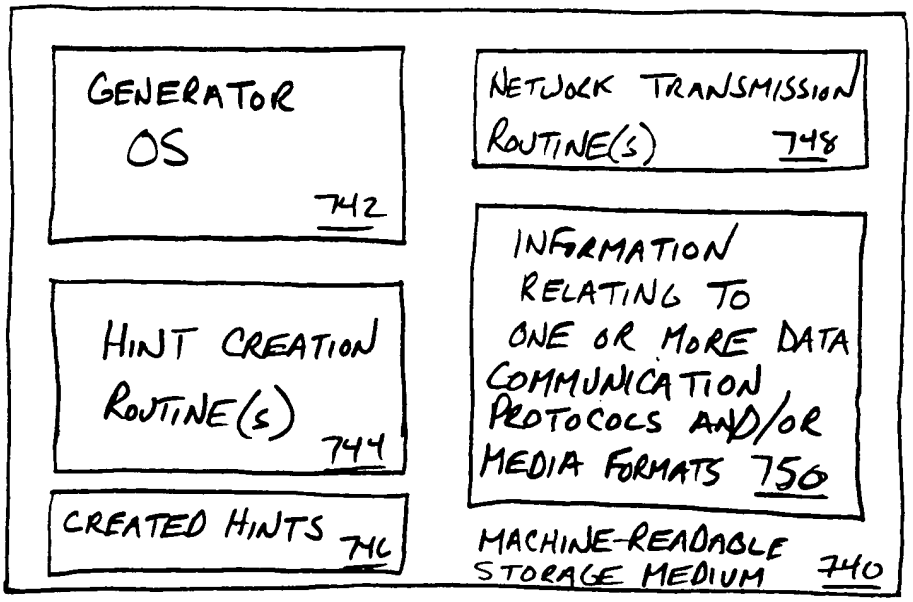

GENERATOR OS 742
NETWORK TRANSMISSION ROUTINE(S) 748
HINT CREATION ROUTINE(S) 744
INFORMATION RELATING TO ONE OR MORE DATA COMMUNICATION PROTOCOLS AND/OR MEDIA FORMATS 750
CREATED HINTS 746
MACHINE-READABLE STORAGE MEDIUM 740

FIG. 13

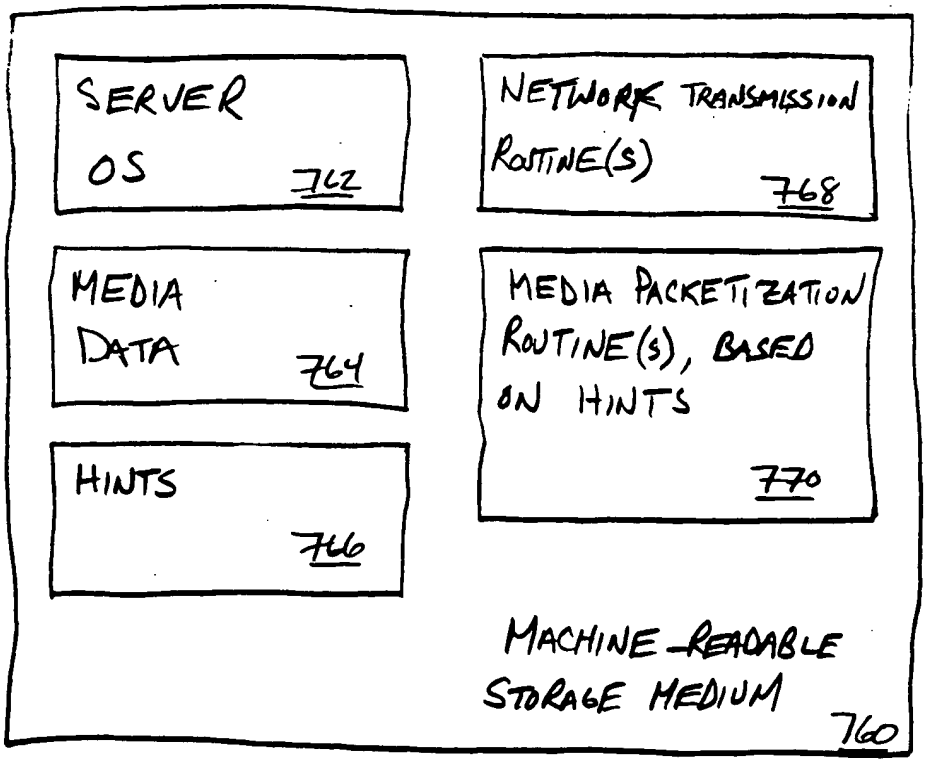
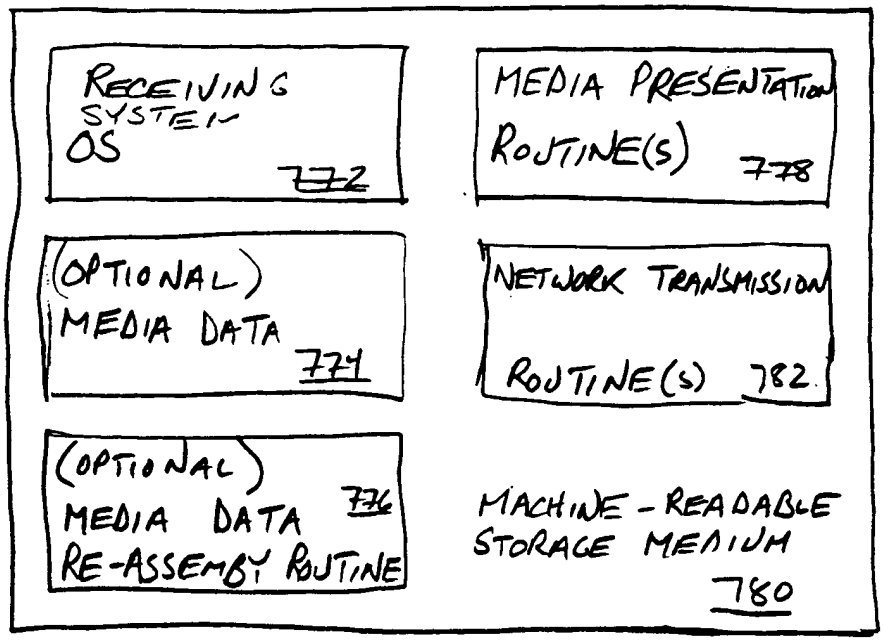

SERVER OS 762
NETWORK TRANSMISSION ROUTINE(S) 768
MEDIA DATA 764
MEDIA PACKETIZATION ROUTINE(S), BASED ON HINTS 770
HINTS 766
MACHINE-READABLE STORAGE MEDIUM 760

FIG. 14


RECEIVING SYSTEM OS 772
MEDIA PRESENTATION ROUTINE(S) 778
(OPTIONAL) MEDIA DATA 774
NETWORK TRANSMISSION ROUTINE(S) 782
(OPTIONAL) MEDIA DATA RE-ASSEMBLY ROUTINE 776
MACHINE-READABLE STORAGE MEDIUM 780

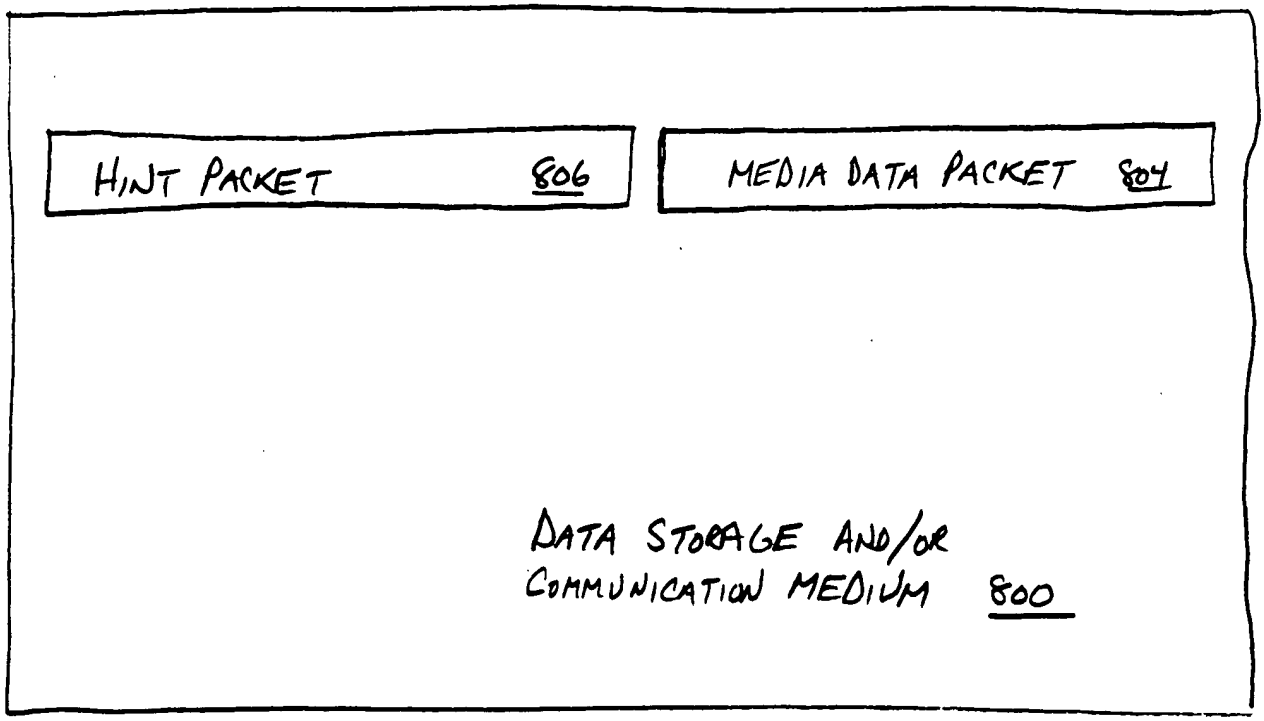

HINT PACKET 806
MEDIA DATA PACKET 804
DATA STORAGE AND/OR
COMMUNICATION MEDIUM 800

FIG. 15